

Rec'd PCT/PTO 22 FEB 2005

525, 173

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
4 March 2004 (04.03.2004)

PCT

(10) International Publication Number
WO 2004/019123 A1

(51) International Patent Classification⁷: G02F 1/1362, H01L 27/00

(21) International Application Number:
PCT/IB2003/003484

(22) International Filing Date: 6 August 2003 (06.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0219771.3 24 August 2002 (24.08.2002) GB

(71) Applicant (for all designated States except US): KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventor; and

(75) Inventor/Applicant (for US only): YOUNG, Nigel, D. [GB/GB]; Philips Intellectual Property & Standards, Cross Oak Lane, Redhill, Surrey RH1 5HA (GB).

(74) Agent: SHARROCK, Daniel, J.; Philips Intellectual Property & Standards, Cross Oak Lane, Redhill, Surrey RH1 5HA (GB).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

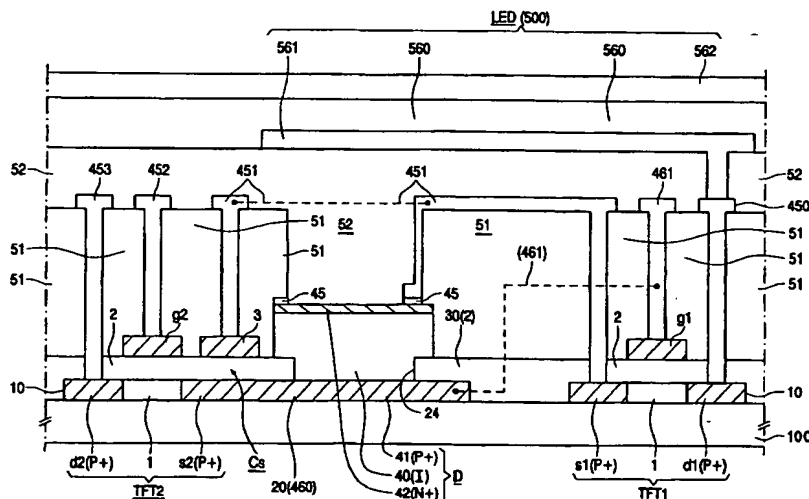
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MANUFACTURE OF ELECTRONIC DEVICES COMPRISING THIN-FILM CIRCUIT ELEMENTS



(57) Abstract: In the manufacture of an electronic device such as an active matrix display, a vertical amorphous PIN photodiode or similar thin-film diode (D) is advantageously integrated with a polysilicon TFT (TFT1, TFT2) in a manner that permits a good degree of optimisation of the respective TFT and diode properties while being compatible with the complex pixel context of the display. High temperature processes for making the active semiconductor film (10) of the TFT more crystalline than an active semiconductor film (40) of the diode and for forming the source and drain doped regions (s1,s2, d1,d2) of the TFT are carried out before depositing the active semiconductor film (40) of the diode. Thereafter, the lateral extent of the diode is defined by etching while protecting with an etch-stop film (30) an interconnection film (20) that can provide a doped bottom electrode region (41) of the diode as well as one of the doped regions (s2, g1) of the TFT.

WO 2004/019123 A1